

REMARKS

I. Claim Objection

Claims 1, 5, 8 and 11 were objected to, apparently because there was no definition of ΣM_2O present.

New claims 15 to 28 have been added and claims 1 to 14 have been canceled.

Claims 15, 19, 22 and 25 correspond to the canceled independent claims. A definition for ΣM_2O has been added to the last line of each of these new claims. ΣM_2O is of course the sum total of the percentages by weight of all alkali metal oxides present. Of course since all claims now include the limitation that the glass is Li_2O free, the amount of Li_2O present is always 0.

The alkali metal oxides are of course a well-defined and well-known group of oxides of elements in column Ia of the periodic table. They include Na_2O , K_2O , Cs_2O and Rb_2O .

Basis for this definition of ΣM_2O is found on page 15, lines 9 to 10, of applicants' originally filed specification. At that point in the specification M_2O is identified as a symbol for any alkali metal oxide. Thus the ΣM_2O is the sum of all alkali metal oxides present.

For the foregoing reasons it is respectfully submitted that new claims 15, 19, 22 and 25 should not be objected to for not defining ΣM_2O .

II. New Independent Claims

New independent glass composition claims 15, 19, 22 and 25 contain the subject matter of canceled independent glass composition claims 1, 5, 8 and 11 respectively together with other limitations to further distinguish the claimed glass compositions from the prior art.

First the glass compositions of new claims 15, 19, 22 and 25 are limited to compositions that are free of Li₂O. The basis for this limitation is found on page 15, lines 15 to 16, of applicants' originally filed specification.

Second the glass compositions of new claims 15, 19, 22 and 25 are limited to compositions that are free of CuO. Page 6, last paragraph, of the specification describes disclosures in a prior art JP reference (Hoya) that discloses that CuO imparts a "strong color", i.e. an intense color, to glass compositions. Page 16, lines 6 to 7, state that the preferred glass compositions must be "free of coloring and/or optically active components". Since CuO is a strong coloring component, the combined disclosures on page 6 and 16 of applicants' specification provide a basis for excluding CuO and for the limitation that the glass composition of the applicants is "free of CuO".

III. Rejections based on Oguma, et al

A. Anticipation

Claims 1 and 14 were rejected as anticipated under 35 U.S.C. 102 (b) by Oguma, et al, US '066.

Oguma, et al, disclose a zinc phosphate glass in which ZnO and P₂O₅ are the main required ingredients in the glass batch. However CuO is also a required ingredient, which is necessary to provide the light absorption properties for the glass of Oguma, et al, shown in fig. 2 of US '066. These light absorption properties are required so that the glass can be used for the near infrared absorption filter, the primary application described in Oguma, et al.

The glass of Oguma, et al, must necessarily contain from 0.2 to 12 % by weight of CuO. See abstract and claim 1. All examples in the Tables in Oguma, et al, contain CuO.

On the other hand, the optical glass according to applicants' invention is preferably colorless. More significantly, all independent claims presented above have been amended to exclude CuO as an ingredient, because it produces an intense color, as shown by fig. 1 of Oguma, et al.

It is well established that each and every limitation of a claimed invention must be disclosed in a single prior art reference in order to be able to reject the claimed invention under 35 U.S.C. 102 (b) based on the disclosures in the single prior art reference. See M.P.E.P. 2131 and also the opinion in *In re Bond*, 15 U.S.P.Q. 2nd 1566 (Fed. Cir. 1990).

Oguma, et al, of course requires the presence of CuO in his glass, while the independent claims 15, 19, 22 and 25 claim a glass composition that must not include CuO – it is free of CuO.

In addition applicants' new claims exclude Li₂O from the glass compositions claimed in the new claims. In general Li₂O is an optional ingredient in the glass of Oguma, et al, with a range of 0 to 5 %. Also Li₂O is present in examples 2, 14 and 17 of Oguma, et al.

Thus it is respectfully submitted that **none** of the new claims 15 to 28 should be rejected under 35 U.S.C. 102 (b) as anticipated by Oguma, et al.

B. Obviousness

Claims 2 to 13 were rejected under 35 U.S.C. 103 (a) as obvious over Oguma, et al.

The original claims 2 to 13 do claim glass compositions in which some of the oxide ingredients, indeed the main ingredients ZnO and P₂O₅, have concentration ranges that overlap those disclosed in the Oguma, et al. However claims 1 to 14 have been canceled and new claims 15 to 28 have been filed.

The claimed glass compositions of new claims 15 to 28 are required to be free of CuO. Furthermore they must not have any amounts of CuO that would impart a color to the glass, since the glass is used for colorless and transparent optical elements, such as lenses.

Oguma, et al, teach the opposite regarding the presence of CuO in their glass compositions. Oguma, et al, requires enough CuO to impart a strong color to their glass compositions, which produces the light absorption behavior that is

shown in figure 1 of US '066.

A prior art reference that teaches the opposite from a claimed invention cannot be used under 35 U.S.C. 103 (a) to reject the claimed invention as obvious. See, for example, M.P.E.P. 2145. X. D. Furthermore the Federal Court of Appeals has said:

"That the inventor achieved the claimed invention by doing what those skilled in the art suggested should not be done is a fact strongly probative of nonobviousness." in *Kloster Speedsteel AB v. Crucible Inc.*, 230 U.S.P.Q. 81 (Fed. Cir. 1986), on rehearing, 231 U.S.P.Q. 160 (Fed. Cir. 1986).

For the foregoing reasons it is respectfully submitted that none of the new claims 15 to 28 should be rejected under 35 U.S.C. 103 (a) as obvious over Oguma, et al.

IV. Rejections based on JP9278479

A. Anticipation

Claims 1 to 4 and 14 were rejected as anticipated under 35 U.S.C. 102 (b) by JP9278479.

JP9278479 discloses a zinc phosphate glass with a low glass transition point, excellent chemical durability and other important properties. The main ingredients in this zinc phosphate glass are ZnO and P₂O₅. However Li₂O is a required ingredient, with an amount range of from 1 to 5 % by weight, in the glass compositions of the JP reference.

On the other hand, applicants' claimed glass compositions of new claims

15 to 28 must be free of Li₂O. Glass compositions that are free of Li₂O are less expensive and are less likely to undergo devitrification, according to page 15 of applicants' specification.

It is well established that each and every limitation of a claimed invention must be disclosed in a single prior art reference in order to be able to reject the claimed invention under 35 U.S.C. 102 (b) based on the disclosures in the single prior art reference. See M.P.E.P. 2131 and also the opinion in *In re Bond*, 15 U.S.P.Q. 2nd 1566 (Fed. Cir. 1990).

The JP reference teaches the opposite from the limitation in all new claims that the claimed glass compositions must be free of Li₂O.

For the foregoing reasons it is respectfully submitted that none of the new claims 15 to 28 should be rejected under 35 U.S.C. 102 (b) as anticipated by JP9278479.

B. Obviousness

Claims 5 to 13 were rejected under 35 U.S.C. 103 (a) as obvious over JP9278479.

The original claims 5 to 13 do claim glass compositions in which some of the oxide ingredients, indeed the main ingredients ZnO and P₂O₅, have concentration ranges that overlap those disclosed in the JP9278479. However claims 1 to 14 have been canceled and new claims 15 to 28 have been filed.

However the claimed glass compositions of new claims 15 to 28 are required to be free of Li₂O. Furthermore they must not have any amounts of Li₂O because that would increase the tendency to crystallize.

JP9278479 teaches the opposite regarding the presence of Li₂O in their glass compositions.

A prior art reference that teaches the opposite from a claimed invention cannot be used under 35 U.S.C. 103 (a) to reject the claimed invention as obvious. See, for example, M.P.E.P. 2145. X. D. Furthermore the Federal Court of Appeals has said:

"That the inventor achieved the claimed invention by doing what those skilled in the art suggested should not be done is a fact strongly probative of nonobviousness." in *Kloster Speedsteel AB v. Crucible Inc.*, 230 U.S.P.Q. 81 (Fed. Cir. 1986), on rehearing, 231 U.S.P.Q. 160 (Fed. Cir. 1986).

For the foregoing reasons it is respectfully submitted that **none** of the new claims 15 to 28 should be rejected under 35 U.S.C. 103 (a) as obvious over JP9278479.

V. Rejections based on JP11268927

A. Anticipation

Claims 1 and 14 were rejected as anticipated under 35 U.S.C. 102 (b) by JP11268927.

JP11268927 discloses a zinc phosphate glass in which ZnO and P₂O₅ are the main required ingredients. However CuO is a required ingredient, which is necessary to provide the desired properties for the glass of JP11268927. The glass of this JP reference is used in an image pickup device and must necessarily contain from 0.2 to 10 % by weight of CuO.

On the other hand, the optical glass according to applicants' invention is preferably colorless. All independent claims presented above have been amended to exclude CuO as an ingredient, because it produces an intense color, as described hereinabove in connection with Oguma, et al.

It is well established that each and every limitation of a claimed invention must be disclosed in a single prior art reference in order to be able to reject the claimed invention under 35 U.S.C. 102 (b) based on the disclosures in the single prior art reference. See M.P.E.P. 2131 and also the opinion in *In re Bond*, 15 U.S.P.Q. 2nd 1566 (Fed. Cir. 1990).

JP11268927 of course requires the presence of CuO in their glass, while the independent claims 15, 19, 22 and 25 claim a glass composition that must not include CuO – it is free of CuO. This JP reference certainly does not disclose the negative limitation that the glass compositions are free of CuO.

In addition, applicants' new claims exclude Li₂O from the glass compositions claimed in the new claims. In general Li₂O is an optional ingredient in the glass compositions of JP11268927 with a range of 0 to 5 %.

Thus it is respectfully submitted that none of the new claims 15 to 28 should be rejected under 35 U.S.C. 102 (b) as anticipated by JP11268927.

B. Obviousness

Claims 2 to 13 were rejected under 35 U.S.C. 103 (a) as obvious over JP11268927.

The original claims 2 to 13 do claim glass compositions in which some of the oxide ingredients, indeed the main ingredients ZnO and P₂O₅, have

concentration ranges that overlap those disclosed in the JP11268927. However claims 1 to 14 have been canceled and new claims 15 to 28 have been filed.

The claimed glass compositions of new claims 15 to 28 are required to be free of CuO. Furthermore they should not have any amounts of CuO that would impart a color to the glass, since the glass is preferably used for colorless and transparent optical elements, such as lenses.

JP11268927 teach the opposite regarding the presence of CuO in their glass compositions. JP11268927 requires enough CuO to impart a strong color to their glass compositions, which produces the light absorption behavior that is shown in figure 1 of US '066.

A prior art reference that teaches the opposite from a claimed invention cannot be used under 35 U.S.C. 103 (a) to reject the claimed invention as obvious. See, for example, M.P.E.P. 2145. X. D. Furthermore the Federal Court of Appeals has said:

"That the inventor achieved the claimed invention by doing what those skilled in the art suggested should not be done is a fact strongly probative of nonobviousness." in *Kloster Speedsteel AB v. Crucible Inc.*, 230 U.S.P.Q. 81 (Fed. Cir. 1986), on rehearing, 231 U.S.P.Q. 160 (Fed. Cir. 1986).

This JP reference teaches that their glass compositions must include from 0.2 to 10 % by weight of CuO, while applicants' claimed compositions must not include any CuO. The JP reference thus teaches the opposite from the compositions claimed in claims 15 to 28.

For the foregoing reasons it is respectfully submitted that **none** of the new

claims 15 to 28 should be rejected under 35 U.S.C. 103 (a) as obvious over JP11268927.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,


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